

Financing vineyards acquisitions: a monitoring role for the bank ?

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Summary : Success or failure of newly established winegrowers is a key question and the bank is particularly interested in *how to properly finance good* wine farms “installation” projects. This paper examines the role of debt contract terms (credit availability, maturity, different type of loans, collaterals) in mitigating information asymmetry, first in focusing on the debt contract terms according to general characteristics of the “installation projects”, supposed to be more or less risky, second in making some correlation tests between the debt contract terms. We use bank data collected in a unique survey of 272 vineyards acquisitions in the main French wine regions. As a result, we can propose three very distinct bank-winegrower relationship stories: the success story, when credit availability automatically reduces the collateral ratio; the bank-firm dependency story, when credit rationing occurs and short maturities give monitoring power to the bank; the failure story, when tense liquidity, over-borrowing and repayment default characterize the bank relationship.

1. Introduction

Success or failure of newly established winegrowers is a key question for “Crédit Agricole”, the first agricultural bank in France (representing about 80% of the agricultural credit market). The renewal of the vineyards and the winegrowing is ensured by a few creations and many buyouts or successions, and the bank is particularly interested in how to *properly finance good* wine farms installation projects.

The wine sector presents two major specificities making the bank relationship a critical point:

- First, the buyout has become very costly and is often linked to large investments. Different reasons can be given: winegrowing is a highly capital intensive activity (Couderc et Cadot, 2005); the installation often entails a transition period where the wine farm must provide revenue both to the former and the new farm chief. This also adds to a willingness of the new entrepreneur to develop *his* own projects, which generally require heavy investments, even if some subsidies are devoted to “young farmers”¹ for investing .
- Second, the bank is generally the main capital provider to the newly acquired wine-growing or wine-making firm. Three reasons can explain this specific and unusual feature: an historical involvement of the bank in the wine sector, due to its previous state monopoly on advantageous subsidized credit to agriculture in France; a potentially limited personal equity contribution to the new estate by the young entrepreneur; and the low level of risk stemming from the *past* agricultural markets regulations²

This situation is rapidly evolving given the recent changes arising both in the wine and in the banking sector. First, we observe a market risk increase in the French wine sector since the beginning of the current crisis. Moreover, “Crédit Agricole” has not been benefiting any more from its monopoly on subsidised credits since the mid-90s (and these grants incentives

¹ These subsidies are an inheritance of the last 30 years agricultural structural policies, considering that the “young farmers” (Jeunes Agriculteurs) convey the modernisation of the sector.

² According to Montaigne (2005), the King law explains the current wine crisis. There no longer exists the means to regulate the production level.

are relatively weak as the market interest rate is at the lowest and very close to those of subsidised credit rates. It should also be noted that the implementation of Basel 2 recommendations³ raises new questions on risk assessment and credit delivery by the banks.

Today, the succession of the aging 77 000 French wine growers is not ensured, as the annual generational replacement rate, which should reach 2,5 to 3 %, is stabilizing at an historical low of 1 %. And although the average size of the wine farm has increased from 5.5 hectares in 1988 to 8 hectares in 2000, it is quite insufficient to compensate for the drop in buyouts.

In this context, critical questions on wine farms acquisition through heavy bank financing arise: should the bank continue to finance these larger acreage (and therefore always more costly) acquisitions or successions at the same level? If not, we shall expect a further fall in the number of farms transmissions, which should again not be totally compensated by a concentration phenomenon. If any case, and according to our discussions, the key question for the bank is *how to properly finance these new winegrowers and winemakers...*

In this paper, we assume that the bank can minimise the default risks thanks to the information sharing through the debt contract terms, i.e. the availability of credit, the maturity structure, the use of personal or “certain” collateral and the use of renewable line of credits. This requires a theoretical insight in the agency relationship, and more precisely the bank relationship theory, interpreting the details of the financial contract terms linking the bank and the firm. In our view, the specificities of the bank-firm relationship in the wine sector, a highly capitalistic activity leading to an important involvement of the bank, make this field of a stringent interest in order to test some theoretical predictions.

The research on the bank-firm relationship is a growing body since the seminal paper of Diamond (1984) on the financial intermediation, which poses the financial institutions as an outcome of the information asymmetry. In the financial intermediation theory, financial institutions have a “delegated monitoring” role. Fama (1985) shows that there is something “special” with banks, as firms continue to rely on banks although they are not offering the less costly funds resources. He suggests that banks have a comparative advantage for reducing the information asymmetry through other services provided to firms such as saving deposit or revolving credit. In this respect, the multiple interactions are resulting in information sharing and are sometimes leading the bank to get a “voice in” the corporate governance of the firm. This is what Petersen and Rajan (1994) have been calling the bank relationship. In particular, they provide a famous empirical work on SMEs which is showing that a strong bank relationship increases the credit availability and can also lead to a lower interest rate (if the lock-in effect of the bank relationship does not lead the bank to extracting a rent from the informational advantage). More recently, Petersen (2000) has developed a new conception of the role and the nature of the information: the banks can take advantage of their ability to process “soft information”, i.e. qualitative and subjective information, as compared to the other financial institutions which, in general, only get access to “hard information”, i.e. quantitative and objective information. Indeed, for Chakraborty et Hu (2006), “a bank’s ability to extract [hard and soft] information through financial services that it provides reduces the risk and, ultimately, the propensity to secure such loans”. At the same time, finance researchers have been exploring the role of collateral and maturity in reducing the problem of information asymmetry. We will see that these theories can lead to opposite expectations. Nevertheless, they should help us shed the light on the role of collateral and debt maturity structure in lowering the information asymmetry.

³ The Basel committee consists in an international meeting of major actors of the banking sector. This aims to formulate and promote the best practices in order to secure the banking sector.

This paper is structured as follows: in section 2 we examine theoretical views about the role of the different credit contract terms, and suspect that these terms, i.e. the availability of credit, the maturity structure, the collateral requirement and the line of credit, are interdependent and reflect the nature of the bank relationship. The potential role of the different contract terms differs in mitigating the information asymmetry, and we will discuss their potential interactions in the frame of the bank relationship. Then, we will present the data and some general features about wine farms creations or buyouts and analyse the various debt contract terms in section 3. In section 4, we focus on the relation between the debt contract terms and the winegrower installation characteristics; in order, in section 5, to test some correlations between the credit contract terms and conclude on the possible way to increasing the credit delivery without increasing risks.

Our empirical results often contradict theoretical predictions. Finally, we draw three bank financing stories: the success story, when the credit availability automatically decreases in line with the collateral ratio; the bank-attached story, when credit rationing occurs and short maturities give a monitoring power to the bankers; the failure story, when tense liquidity and credit repayment failure, due to heavy over-borrowing, characterize the bank relationship.

As a result, we will conclude that the debt contract terms and their interrelations differ and vary with the installation characteristics because these characteristics influence the nature and strength of the bank-winegrower relationship.

2. The debt contract terms

2.1. The availability of credit

In this paper, we will consider the availability of credit as the first term of the debt contract. As defined by Petersen and Rajan, the credit rationing is the amount wanted by the firm but refused by the lender. Opposite to the credit rationing, the availability of credit means that the size of the loan granted by the banker equals the amount wanted by the firm.

The availability of credit is the first concern of SMEs researchers. Petersen and Rajan (1994) define the “extent to which small firms are nurtured and have access to the capital necessary for growth” as an “important measure of the efficiency of a financial system”.

Stiglitz and Weiss (1981) provide a seminal theoretical insight in the problem of credit rationing. They show that under information asymmetry regime, there exists a credit rationing equilibrium, when “among loan applicants who appear to be identical some receive a loan and others do not, and the rejected applicants would not receive a loan even if they offered to pay a higher interest rate”. This occurs because of an adverse selection problem (a higher interest rate draws riskier applicants) and a moral hazard effect (a higher interest rate influences borrowers to choose riskier investments). They argue that collaterals will present the same properties and therefore cannot prevent the credit rationing to occur.

Williamson (1987) provides a model where credit rationing occurs because of high monitoring costs (and without adverse selection and moral hazard as defined in Stiglitz and Weiss). In this case the credit rationing will depend upon the entrepreneurs’ monitoring costs.

These two theoretical insights point out two potential effects of debt contract terms on credit availability: (i) the adverse selection and moral hazard effects; (ii) the “entrepreneurs’ monitoring costs” effect. For the first point, the finance research provides numerous theoretical insights dealing specifically with collateral and debt maturity. For the second point, evidences will come from the “bank relationship” researchers. We will see in the next paragraphs that the debt contract terms’ role in the bank relationship building up can overcome the adverse selection and moral hazard expected effects.

In our view, because of a lack of “objectivity” of the financial information⁴ and the special context of the wine growing firm acquisition, we assume the “bank relationship hypothesis” to be the more pertinent.

Proposition 1: all other things being equal, the credit availability decreases with risk and information asymmetry

2.2. Collateral

Berger and Udell (1995) show that collateral theories give opposite expectations: (i) collateral will voluntarily be offered to the banks by safer borrowers (they cite Bester, 1985, Besanko and Thakor 1987, Chan and Kanatas, 1987); (ii) riskier borrowers will more often have to pledge collaterals (they cite Sway and Udell 1988, Boot, Thakor, and Udell 1991, Black and de Meza 1992).

The first hypothesis supposes that collateral has a signalling role. In this respect, when this type of entrepreneurs invests in non risky projects, they perceive some incentives to pledge collateral.

The second hypothesis implies that lenders use collaterals in order to reinforce incentives for repayment of the loan. “Most of the empirical collateral literature supports the view that collateral is associated with riskier borrowers and loans (Orgler 1970; Hester 1979; Berger and Udell 1990; Booth 1992, 1993)”. They find that “borrowers with longer banking relationships pay lower interest rates and are less likely to pledge collateral. These results are consistent with theoretical arguments that relationship lending generates valuable information about borrower quality.” This literature analyses the role of collaterals in mitigating the adverse selection and moral hazard problem and supports the assumption that bank relationship should decrease collateral requirements.

However, some empirical results contradict this expectation. Indeed, Degryse and Van Cayseele (2000) show that, as expected, the amount of collateral decreases with the relationship duration; but more surprisingly, it increases with the scope of the relation. They suggest that banks informational advantage reduces “the dissipative cost of deploying collateral and make collateral use more efficient”. Ono and Uesugi (2005) find similar results which make collateral an intrinsic element of the bank relationship. Indeed, they show that “banks whose claims are either collateralised or personally guaranteed monitor borrowers more frequently”. As a result, this challenges the “Boot and Thakor (1994) prediction that collateral is used to resolve moral hazard in the early periods of a long-term relationship, and is lifted after the borrower achieves its first success” Chakraborty and Hu (2006) and would confirm the Rajan and Winton (1995) view of collaterals as “incentives to monitor”.

Proposition 2: all other things being equal, collateral can lower the risk incurred by the bank, mitigate the information asymmetry and therefore increase the credit availability.

2.3. The maturity structure

The debt maturity can be approached by the proportion of one year short term debt within the total debt. Fama (1985) suggests that banks take informational advantages from revolving short-term credit. Rajan and Winton (1995) consider that “short fixed maturities give institutions greater flexibility and control”. Diamond (1993) draws a model where maturity

⁴ Indeed, the French farms do not always provide standard financial documents. At best, they present a summary of their accounting sheet each year. At worst they have no legal obligation to present their accounts. There is also a 1 year delay derogation for publishing annual accountancy in the agricultural sector.

structure depends on risks rating because of information asymmetry: the riskier firms tend to lower their proportion of short-term debt in order to decrease their liquidity risk. However, the model predicts a non-monotonic relation as the financial institutions are not willing to deliver long term unverifiable financing to the riskiest firms. Therefore, both lowest-risk and riskiest firms should rely on shorter-term credit.

Berger and al. (2004) provide a Diamond's model empirical test on SMEs: on one hand they confirm that under a low information asymmetry regime, the low-risk firms rely on longer maturity debt; on the other hand, their results conflict with the model as the riskiest firms do not experience short maturities even under a low information regime. According to the authors, this result suggests that banks are able to limit risks through means other than shorter maturity.

In our view, Billett and al. (2006) give an interesting insight on the role of short maturity for firms with growth opportunities. They show that short maturity debt is a mean to reduce the agency conflicts for financing growth opportunities, and can be a substitute to control through covenants.

In our view, the special case of the buyout in the wine sector should give prominence to the Diamond's hypothesis concerning the risky firms, and to the Billett's hypothesis when leverage is associated to large investment.

Proposition 3: all other things being equal, short term debts give some monitoring power to banks. Therefore, banks will extend the use of short maturity loans when their risks increase.

2.4. Non-line and lines of credit (LCs)

The LCs have been considered as a special object in the bank relationship literature since the paper of Berger and Udell (1995) and more recently Chakraborty and Hu (2006). Indeed, LCs are supposed to be particularly sensitive to the bank relationship strength because the bank has no mean to know the real use of the loan and is generally unable to collateralise it. It comes that for Chakraborty and Hu, "the mechanism through which banks obtain private information depends on the type of the loan".

Proposition 4: all other things being equal, the lines of credit will be granted to the less risky firms.

2.5. Some expected correlations

Trying to synthesise the propositions drawn above, we will support that debt contract terms are interrelated in the following manner:

- the credit availability will be greater if collaterals are granted;
- if the amount of collateral is limited, the bank can use the monitoring power of short maturity to limit risks;
- the lines of credit will not be granted to risky firms, and this implies that there must exist a negative correlation between LCs and short term credit as LCs would directly decrease the monitoring power given by short term.

Focusing on the debt contract terms and their correlations should enable us to shed light on how the bank uses the debt contract terms to lower their default risk in the special context of the wine farm acquisition. For example we can assume that at the beginning of the relationship, the bank is willing to get monitoring power through short term credit and to limit

risks through a high level of non personal collateral. In a more advanced stage after the installation, the accumulated knowledge should result in a decrease of short term credit uses, as they necessitate a costly yearly screening.

However, we suspect that the uses of the debt contract terms also depend upon the involvement of the bank in the relationship. Indeed, the bank can choose between either a strong involvement with a close relationship or a limited involvement without a real relationship, because the monitoring costs can overcome the expected profit from the acquisition financing. As a result, we could assume that for some wine growers the bank will refuse to set up a relationship or will ration the borrower.

Expected correlations	Credit availability	Collateral	Short maturity
Credit availability		Collateral decreases directly the credit risk	Short maturity decreases risk through monitoring
Collateral	+++ (non BRS)		Monitoring acts as a substitute to direct risk reducing
Short maturity	+(BRS)	-- (BRS)	

BRS: Bank Relationship Sensitive

Tab 1: Expected correlations

In the following paragraph, we present the data base and the variables; second we look at the debt contract terms according to the main installation characteristics; then we test the correlations between debt contract terms, first on all types of acquisition and then on sub-sets for which we can expect bank relationships of different intensity.

3. Data and main features of the take-over characteristics and the debt contract

In this section, we first describe our data set and then the variables. We discuss the variables regarding the bank relationship and debt contract terms' empirical literature.

3.1. Sample

The data base has been built up with documents collected by the main agricultural bank (financing about 80% of the French farmers) for "new wine growers" (NWG) identified by the Ministry of Agriculture offices in different wine regions of France. Indeed, people willing to become a wine grower can apply for direct subsidies or subsidized credit. In delivering this credit, the bank gets a monitoring role on the credit allocation to the subsidized investment. Moreover, the bank plays an important role in the viability assessment of the new wine farmer's project. In this context the bank has to collect and keep extensive information on the NWG training, the production structure, the expected financial performance and investments budgets. Access to this information was obtained through a research partnership with the Crédit Agricole for 272 wine firms' buyouts or creations spread among the main French wine producing regions. Wine growers grow grapes to be crushed in cooperative wineries, when wine makers crush their grapes in order to sell wine in bulk or in bottle.

Wine Region	Wine Maker		Wine Grower		Total	
South-East	28	22%	114	79%	142	52%
Bordeaux	43	34%	18	12%	61	22%
Beaujolais-Mâcon	19	15%	10	7%	29	11%
Alsace	15	12%	3	2%	18	7%
Muscadet-Loire	22	17%	0	0%	22	8%
Total	127	100%	145	100%	272	100%

Tab 2: The sample distribution by wine regions

Data on the evolution of the wine growers bank situations (debt nature, amount of short and long term debt, lines of credit (LCs), nature and level of collaterals – and on other elements of the bank relationship such as the duration, incidents such as debt repayment delays, defaults, etc.) and accounting reports were also collected when possible.

An SPSS data base was created thanks to this wide information on the installation context and the current performance, i.e. between 3 and 8 years following the acquisition. Indeed, the family business context often raises the question of a clear-cut limit between the firm performance and the owner-manager revenue as well as between the bank-firm and the bank-entrepreneur relationship.

As a consequence, the personal bank flows, cash in hand, debts and savings of the new farm chief were also collected. As a result, and as an example to show the high capital involvement needed in this sector, the new wine growers, on average, invest 125 kEuros during the 3 years following the acquisition, although a large part of these entrepreneurs are the sons of the former chiefs. The long-term indebtedness represents about 100 kEuros around 5 years after the date of the acquisition (*our data*).

3.2. Debt contract terms' and bank performance variables

First of all, we consider the total financial debt incurred by the firm. In this view, the debt is the sum of the multiple long term credits contracted when buying different assets, plus the short term credits which can be seasonal, revolving or convenience credit and plus the agreed line of credit.

Credit availability

In order to measure credit availability, three proxies can be proposed:

- ✓ the ratio of expected debt to the expected investment budget, *the ex ante credit availability*,
- ✓ the ratio of current debt to the expected debt 3 years after the acquisition, *the ex post credit availability*,
- ✓ the ratio of current debt to the expected investment at the time of the installation, *the general credit availability*.

The *ex ante credit availability* is a proxy of the expected bank involvement at the time of the installation. The *ex post credit availability* is a proxy of the actual bank involvement compared to the one expected at the time of the acquisition. The *general credit availability* is a proxy of the bank involvement in the investment process which has been following the take-over.

When compared to measurement of the credit availability used in other empirical approaches of the credit rationing, it is worth noting that:

- ✓ Petersen and Rajan (1994) use the firm's trade credit late repayments. This provides a quantitative measure of the refused credit.
- ✓ Cole (1998) uses a binary variable, the likelihood that the firm's potential lender denied or extended credit.

Compared to these two seminal papers, our credit availability measurement, following Cole's remarks, is a more direct and intuitive measure of credit availability than the percentage of trade credits late repayments, as in Petersen and Rajan. Moreover, quantitative continuous variables measuring the credit availability also present some strong advantages, as the influence of other quantitative variables such as collateral level, debt maturity ratio or LCs ratio, can directly be tested against the credit availability extent.

Maturity structure and LCs / Non LCs

We will use the ratio of total short term credit to total debt as a measure of the maturity structure. We will consider the LCs as short term credit as this is theoretically employed to finance temporary liquidity needs. Therefore, the total short term credit equals the sum of LCs plus conventional short term credit.

- ✓ the ratio of short term debt to total financialdebt, *maturity*

This measure of maturity corresponds to the one used by Barclay and Smith (1995) and Billett and al. (2006), who use the fraction of total debt of three years or less in a study on public firms. We note that Berger and al. (2004) provide a direct test of maturity in observing "the time in years before the scheduled repayment of all principal and interest".

We will have to be cautious interpreting the maturity analysis as we consider financing through both line of credit and conventional short term credit. We have seen that these two ways of financing present very different properties. However, we have not seen studies on the corporate debt structure taking into account the line of credit proportion as a determinant of availability, collateralisation or maturity. In our data, short term credit generally corresponds to one year credit, and can be granted on a revolving basis or to finance an exceptional cash distress. Note that short term credit can sometimes be collateralized through warrant or personal pledge.

We will also consider

- ✓ the ratio of LCs debt to total financialdebt, *LC*
- ✓ the ratio of non-LCs debt to total financialdebt, *short term credit*.

Collateral

As for the maturity structure, we will use a ratio to characterize the collateral level of the debt contract. However, as Berger and Udell (1995), we need to distinguish different types of collateral: the collateral backed by assets which encompasses mortgages or gages and the personal pledge. Indeed, bankers make a distinction between secured collateral (backed by assets) and unsecured collateral (personal pledge). In case of default, the probability and the expected level of recovery depend upon the type of collateral. This is the more intuitive feature. Less intuitive are the incentive properties of collateral. In the particular case of buyout, for example, we can assume that the personal pledge of the NWG predecessor gives an indication of his trust in the new entrepreneur.

In this research, we will take into account the proportion of collateral as compared to the total financial debt. This differs from Berger and Udell (1995) or Degryse and Van Cayseele (2000), who are using a dummy variable for any type of collateral associated with loans. We have retained:

- ✓ the ratio of total collateral to total financial debt, *collateral*,
- ✓ the ratio of secured collateral to total financial debt, *secured collateral*.

Performance

In this paper, we will not try to give a real analysis of the financial performance. Instead we have been choosing the annual mean cash balance as a proxy of the risk level associated to the firms. We will also indicate annual cash inflows and the total financial debt size. Firm flows and debt size will be our control variable in the correlation tests.

- ✓ *Flows*
- ✓ *Treasury*
- ✓ *Debt size*

Bank contract terms	Variables names	Variables definitions
<i>Bank performance</i>	<i>Cash in hand/overdraft</i>	Annual mean cash balance
<i>Control variable</i>	<i>Flows</i>	Annual cumulative inflows
	<i>Debt size</i>	Total financial debt size in 2005
	<i>Year of acquisition</i>	Year of creation or buyout
<i>Credit availability</i>	<i>Ex ante availability</i>	Expected debt to expected investment ratio at the time of acquisition
	<i>Ex post availability</i>	Real debt to expected debt ratio
	<i>General availability</i>	Expected debt to expected investment ratio at the time of acquisition
<i>Collateral</i>	<i>Collateral</i>	Collateral to total debt ratio
	<i>Secured collateral</i>	Secured collateral to total debt ratio
<i>Maturity structure</i>	<i>Maturity</i>	LCs and Short term debt to total debt ratio
	<i>Short term credit</i>	Short term credit to total debt ratio
	<i>LCs</i>	Line of Credit to total debt ratio

Tab 3: The variables of the debt contract structure

3.3. Main characteristics of the debt contract terms

The characteristics of the debt contract terms are hereafter presented, distinguishing wine-makers from wine-growers, as they present different financing needs (see Couderc and Cadot, 2005).

	Wine Makers		Wine Growers		Total		Anova
	Mean value	<i>N</i>	Mean value	<i>N</i>	Mean value	<i>N</i>	<i>P</i>
Cash balance	7 936	124	4 621	138	6190	262	0,04
Inflows	233 263	120	88 689	138	155 933	258	0,00
Debt size	123 536	114	54 576	131	86 663	245	0,00
Ex ante availability	0,78	121	0,83	141	0,81	262	0,71
Ex post availabilty	1,36	116	1,20	134	1,28	250	0,53
General availability	1,15	114	0,75	122	0,94	236	0,01
Collateral	65%	115	51%	136	57%	251	0,00
Secured collateral	23%	117	28%	137	26%	254	0,19
Maturity	21%	111	14%	126	18%	237	0,03
Short term credit	11%	118	4%	130	8%	248	0,00
Line of credit	9%	111	10%	128	9%	239	0,84

Tab 4: Debt contract structure for wine makers and wine growers

In the table 4, we observe that financial characteristics of wine growers and wine makers differ. As already shown in Couderc and Cadot (2005), we confirm that wine making necessitates much more debt (and short term credit) than wine growing. We also see that in our sample wine making firms are bigger also in term of productive vineyards acreage. More interesting, the general availability is significantly lower for wine growers than for wine makers. However, we are not able to say if it is due to ex ante or ex post rationing. The general level of collateral is significantly higher for wine makers but not the secured collateral level. This means that wine makers are able to secure their higher debt through collateral pledge.

4. General firm characteristics and the debt contract terms

In this section, we adopt a descriptive approach, showing that the debt contract terms are linked to the firm characteristics and the installation context. We first look at the debt contract terms according to one criterion of performance, the mean cash balance of firms; then, we look at the investment level, the family or non-family installation context and the acquisition period.

4.1. A “failure” assessment: a negative cash balance

	Positive (cash in hand)		Negative (overdraft)		Total		Anova
	Mean value	N	Mean value	N	Mean value	N	P
% of WM	45%		54%		47%		
Cash balance	9 441	214	-8 303	48	6 190	262	0,00
Inflows	155 886	211	156 141	47	155 933	258	0,99
Debt size	78 303	199	122 832	46	86 663	245	0,01
Ex ante availability	0,81	218	0,80	44	0,81	262	0,95
Ex post availabilty	1,37	207	0,85	43	1,28	250	0,13
General availability	0,97	194	0,80	42	0,94	236	0,42
Collateral	56%	204	64%	47	57%	251	0,16
Secured collateral	25%	207	30%	47	26%	254	0,28
Maturity	14%	191	32%	46	18%	237	0,00
Short term credit	5%	202	18%	46	8%	248	0,00
Line of credit	8%	193	14%	46	9%	239	0,05

Tab 5: Negative and positive treasury and credit contract terms

In the table 5, we see that the debt contract terms differ widely for firms presenting negative mean cash balance. We do not observe differences in flows. But the leverage is largely higher for firms with negative cash (overdraft). The large debt size could indicate an over borrowing situation.

The shorter maturity structure of these firms is a striking result as well as the large proportion of short term credit. *This seems to confirm the hypothesis of Diamond on the short debt maturity for riskiest firms.*

The ex post credit availability seems lower for the firms with a negative cash balance, but not at significant level. The ex ante credit availability is identical for the two types of firms.

As for credit availability, the collateral differences are not significant, even if the collateral ratio (not surprisingly) seems higher for firms in potential financial distress.

4.2. The default (loan repayment failure)

	Repayment		Default		Total		Ano.
	Moyenne	N	Moyenne	N	Moyenne	N	p
% of WM	0,45	226	0,52	46	0,47	272	0,415
Cash balance	7 535	216	-124	46	6 190	262	0,000
Inflows	153 206	213	168 841	45	155 933	258	0,594
Debt size	77 272	202	130 779	43	86 663	245	0,003
Ex ante availability	0,81	218	0,79	44	0,81	262	0,896
Ex post availabilty	1,19	207	1,72	43	1,28	250	0,118
General availability	0,92	194	1,07	42	0,94	236	0,475
Collateral	55%	207	68%	44	57%	251	0,039
Secured collateral	24%	210	36%	44	26%	254	0,028
Maturity	16%	194	25%	43	18%	237	0,254
Short term credit	6%	204	17%	44	8%	248	0,000
Line of credit	10%	195	7%	44	9%	239	0,327

Tab 6: Repayment failure and credit contract terms

We can compare this table with the table 6. Most debt contract characteristics of the default firms correspond to those of the firms with negative cash balance. Note that the mean flow of firms unable to repay the loan is equal to the mean flow of “healthy” firms and the default concerns as many wine makers as wine growers. Conversely to the firms with negative cash balance, we see that the default firms have not undergone any rationing. It seems, on the contrary, that they have benefited from rather good credit availability. However, the collateral ratios are significantly higher than those of “safe” firms. We can think that, to a certain extent, banks take control of the firm through debt with significantly higher short maturities.

4.3. The level of expected investment

	...< 60/95		60/95<... ...<100/165		...> 100/165		Total		Ano.	Lin.
	MV	N	MV	N	MV	N	MV	N	p	p
<i>% of WM</i>	46%		46%		48%		47%			
Cash balance	6 396	85	8 387	93	3 550	84	6 190	262	0,04	0,15
Inflows	118 741	82	142 909	93	207 269	83	155 933	258	0,00	0,00
Debt size	65 399	83	82 062	83	113 839	79	86 663	245	0,01	0,00
Ex ante availability	1,01	85	0,77	92	0,65	85	0,81	262	0,11	0,04
Ex post availabilty	1,57	81	1,16	88	1,11	81	1,28	250	0,28	0,15
General availability	1,28	77	0,96	77	0,61	82	0,94	236	0,00	0,00
Collateral	51%	83	59%	86	62%	82	57%	251	0,10	0,04
Secured collateral	18%	84	28%	86	31%	84	26%	254	0,02	0,01
Maturity	13%	78	16%	81	23%	78	18%	237	0,05	0,02
Short term credit	6%	79	6%	87	12%	82	8%	248	0,06	0,03
Line of credit	8%	79	10%	81	11%	79	9%	239	0,52	0,26

Tab 7: Expected investment and credit contract terms

In the table 7, we see a quite surprising result, with a non monotone link between cash balance and expected investment. Note that firms which plan the most important investments present the worst mean cash balance. They are also the most rationed firms. The rationing is even more important if we take the general availability variable. Collateral level, as well as short maturities increase with expected investment level. This suggests that the bank protects itself in directly decreasing default risks through rationing and collateral, and indirectly through short maturities.

4.4. The « installation » context

	Succession		Family Context		Non-Family Context		Total	
	MV	<i>N</i>	MV	<i>N</i>	MV	<i>N</i>	MV	<i>N</i>
% of WM	53%		24%		36%		47%	
Cash balance	6 428	188	4 760	36	6 365	38	6 190	262
Inflows	177 349	184	79 231	36	124 897	38	155 933	258
Debt size	92 644	175	63 002	34	79 937	36	86 663	245
Ex ante availability	0,78	187	1,07	35	0,73	40	0,81	262
Ex post availability	1,21	179	1,65	34	1,28	37	1,28	250
General availability	1,01	169	0,93	32	0,64	35	0,94	236
Collateral	58%	182	59%	34	51%	35	57%	251
Secured collateral	24%	184	34%	34	26%	36	26%	254
Maturity	20%	172	10%	32	12%	33	18%	237
Short term credit	9%	181	4%	33	4%	34	8%	248
Line of credit	10%	174	5%	32	9%	33	9%	239

Tab 8: Take-over context and credit contract terms

The context is important. In our analysis, we distinguish three categories:

- i. the succession buyout, when the new farm chief succeeds to his/her parents;
- ii. the buyout or creation in a family context, when the new farm chiefs takes over or sets up a production unit near the family farm;
- iii. the buyout or creation in a non-family context.

Succession involves bigger estates in term of flows than the “non-family context” category. The acquisition in family context concerns the smallest firms. Actually, this could be a transitional form, as we expect that the new farm chief will merge the newly acquired production unit and the parent’s one in the future.

As expected, we observe that the bank commitment is less important for the “non-family context” firms. Indeed, both risks and information asymmetry problem are particularly critical in this context. Surprisingly, we see that the proportion of short-term and collateral are significantly low for these firms, supposed to be the riskiest. This result is also true if we distinguish WM and WG. We see that the low level of collateral comes from less personal collateral. This can come from a difficulty to use this type of collateral, compared to family context where parents’ or firms’ personal commitment is backed by non-personal collateral. In fact, we can assume that the “non-family context” entrepreneurs experience a credit rationing (the mean cash balance shows that they do not appear to be riskier than others) and that the bank does not use collateral or shorter maturity to decrease the credit risk. But we need to be cautious with these results as the ANOVA test does not confirm these differences.

4.5. The acquisition period

	98-99		00-01		02-03		Total		Ano.	Lin.
	MV	N	MV	N	MV	N	MV	N	p	p
% of WM	42%		45%		55%			47%		
Cash balance	6 108	93	5 471	98	7 291	71	6 190	262	0,66	0,60
Inflows	169 436	92	154 091	96	140 712	70	155 933	258	0,59	0,31
Debt size	86 378	87	76 528	90	100 443	68	86 663	245	0,39	0,47
Ex ante availability	0,86	94	0,78	97	0,77	71	0,81	262	0,84	0,58
Ex post availability	1,23	88	1,11	93	1,57	69	1,28	250	0,34	0,32
General availability	1,00	83	0,84	92	1,01	61	0,94	236	0,60	0,96
Collateral	60%	91	56%	92	55%	68	57%	251	0,70	0,42
Secured collateral	28%	93	23%	93	26%	68	26%	254	0,51	0,56
Maturity	16%	86	17%	86	21%	65	18%	237	0,50	0,25
Short term credit	5%	91	8%	91	11%	66	8%	248	0,12	0,04
Line of credit	10%	86	9%	87	9%	66	9%	239	0,86	0,70

Tab 9: Acquisition period and credit contract terms

In the table 9, we observe that the more recent acquisitions do not seem to experience bad performances. Indeed, if the flows seem (not surprisingly) lower for the recent acquisitions, their cash balance does not show a liquidity difficulty. We cannot interpret the ex post availability in this table as the reimbursement of the debt linked to the starting investments is obviously more advanced for the less recent take-overs. As expected, we see that the debt maturity is shorter for the more recent acquisitions but that the collateral level is non significantly higher for the less recent ones. We note opposite results for WG and WM. Indeed, the general level of collateral remains constant for WM, but the level of secured collateral is far more important for the more recent installations. For WG, the general level of collateral decreases with the duration, as well as “secured” collateral.

4.6. Discussion

This first analysis of the debt contract terms of the recently acquired wine growing or wine making firms confirms some theoretical predictions. The riskiest firms face the lowest debt maturity. One interesting result is the absence of ex ante rationing for these risky firms whereas we see signs of an ex post rationing. But generally, we observe that these firms face an over-borrowing situation, when compared to “safe” firms, rather than a rationing situation. We note that the bank protects itself with more collateral but not at significant level.

The link between investment and the debt contract terms confirms the theoretical predictions. The firms applying for the largest investment financing are the most rationed. They have to provide more collateral and obtain shorter maturity debt.

The analysis of the family context is more surprising: according to the common view among agricultural bankers, the non-family installation context is riskier than the family one. However, we see that the family context differs from the non-family on two points: less general availability, but not at a significant level, less collateral and longer maturity ratio. The striking result is that the debt contract terms for riskiest firms present opposite characteristics. We can try to give two interpretations: first, the non-family entrepreneur does not accept the high level of short-term credit and collateral incurred by “traditional” farmers; second the bank rather prefers to ration than to exert monitoring through short-term credit or collateral pledge (and the vineyard buyer without family support is not able to provide the same amount of collateral than the locally rooted entrepreneurs).

	Negative cash	Investment	Non-Family Context	Period
Availability	-	---	--	0
Collateral	+	+++	-	-
Short maturity	+++	+++	---	+++

Tab 10: The debt contract terms and the take-over characteristics

5. Interdependences of the debt contract terms

5.1. Credit availability and collateral

Contradicting the expected result, we find a negative correlation between collateral and credit availability. This would plead for a non simultaneous mechanism of credit availability and collateral. Actually, an explanation of this correlation can be the following: the collateral ratio is negotiated at the time of the acquisition. Then, collateral will not necessarily be pledged in proportion to the additional credit obtained.

For wine makers, the ex ante availability and secured collateral correlation is significantly positive although the negative correlation between ex post and general availability and collateral remains.

We also find that the riskiest firms present similar characteristics: the correlation between the ex ante availability and secured collateral is positive. However, we don't find any other correlation between credit availability and collateral.

For wine growers, the ex post availability and collateral correlation is the only significant correlation remaining. This would plead for a fixed collateral ratio at the time of the acquisition, which would be overcome if the bank is ready to lend more credit than expected.

Pearson Correlations	Ex ante availability	Ex post availability	General availability	Collateral	Secured collateral
Ex ante availability	1,000				
	.				
	0				
Ex post availability	-0,304***				
	0,000				
	228	0			
General availability	0,122*	0,548***	1,000		
	0,071	0,000	.		
	217	217	0		
Collateral	-0,123*	-0,127*	-0,146**	1,000	
	0,061	0,056	0,032	.	
	231	224	214	0	
Secured collateral	-0,041	-0,087	-0,112*	0,520***	1,000
	0,537	0,192	0,098	0,000	.
	231	227	217	232	0

Control variable: year of acquisition, inflows, debt size

Tab 11: Credit availability and collaterals

5.2. Credit availability and maturity

Pearson Correlations	Ex ante availability	Ex post availability	General availability	Short term credit	Line of credit	Maturity
Ex ante availability	1,000					
	.					
	0					
Ex post availability	-0,304***	1,000				
	0,000	.				
	228	0				
General availability	0,122*	0,548***	1,000			
	0,071	0,000	.			
	217	217	0			
Short term credit	0,076	-0,157**	-0,128*	1,000		
	0,245	0,017	0,058	.		
	231	228	217	0		
Line of credit	-0,078	-0,110	-0,108	0,020	1,000	
	0,239	0,101	0,115	0,766	.	
	225	222	213	229	0	
Maturity	0,008	-0,190*	-0,171**	0,733	0,695	1,000
	0,907	0,005	0,013	0,000	0,000	.
	223	220	211	227	227	0

Control variable: year of acquisition, inflows, debt size

Tab 12: Credit availability and maturity

In the table 12, we see that credit availability is negatively correlated to short maturity. We see different reasons which do not contradict our empirical framework. Indeed, first we can assume that short term credit could have replaced expected long term credit. Second, this replacement implies a higher monitoring power of the bank on the riskiest firms.

5.3. Collateral and maturity

Pearson Correlations	Short term credit	Line of credit	Maturity	Secured collateral	Collateral
Short term credit	1,000				
	.				
	0				
Line of credit	-0,043	1,000			
	0,529	.			
	210	0			
Maturity	0,704***	0,679***	1,000		
	0,000	0,000	.		
	208	208	0		
Secured collateral	-0,122*	-0,128*	-0,187***	1,000	
	0,075	0,064	0,007	.	
	214	210	208	0	
Collateral	-0,094	-0,344***	-0,328***	0,512***	1,000
	0,173	0,000	0,000	0,000	.
	211	210	208	211	0

Control variable: year of acquisition, inflows, debt size, ex post rationing, general rationing, cash balance

Tab 13: Collateral and maturity

In the table 13, we see an inverse link between secured collateral and short term credit. This confirms that short maturity, as a mean to reduce risks in the banker's point of view, can play as a substitute to collaterals.

5.4. Discussion

The correlation tests contradict our expectations: maturity and collaterals do not appear as the determinants of the availability of credit. We would rather argue for the opposite relation: that's the availability of credit which determines the level of collateral and maturity.

In the case of collateral, we think that at the moment of the acquisition funding negotiation with the bank, there exists an implicit contract which fixes the collateral level. And when the take-over performs successfully, the entrepreneur can continue to borrow with this fixed collateral. We test this assumption through a Pearson correlation test on the installation with a debt rationing and with a debt availability regime. We observe that the negative collateral and availability correlation is highly significant for the firms with a debt availability regime. The characteristics of the debt availability, together with less collateral, could correspond to a bank relationship configuration. In this case, the negative correlation between availability and collateral would confirm the Boot and Thakor hypothesis: bank relationship "cultivation" can increase the credit availability and imply less collateral.

Concerning the level of debt maturity, riskiest borrowers, as well as the more recent acquisitions face shorter maturities than others. This would plead for the Diamond's hypothesis: bankers are not willing to deliver long term credit to risky borrowers. Contrary to our hypothesis, which said that shorter maturities should increase credit availability, we see that short maturity is negatively correlated with credit availability. We could assume that short maturity and credit rationing are both consequences of a potential financial distress. In this situation, short maturity credit could simply replace expected long term debt.

6. Conclusion

In this paper, we aim at understanding how the bank uses the debt contract terms in order to mitigate default risks. As expected from the theory, we confirm that short maturity characterizes the more recent acquisitions and debt contracts, as well as the riskiest firms. However, the other correlation tests do not confirm our hypotheses. Shorter maturity and collateral do not seem to be the main determinants of credit availability. We will therefore argue that collateral rather appears as a consequence of credit availability and that short maturity appears as a consequence of both credit rationing and risk increases. As a result, we can propose three very distinct bank-firm relationship stories: the success story, when credit availability automatically reduces the collateral ratio; the bank-firm dependency story, when credit rationing occurs and short maturities give monitoring power to the bank; the failure story, when tense liquidity, over-borrowing and repayment default characterize the bank relationship.

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